Teleconsultation

7

Abstract

This chapter provides the details as to how teleconsultation services may be offered to patients. The methodology required and steps for setting the services up, running it and performing maintenance of the various equipments and instruments involved are all discussed.

Overview

Teleconsultations are usually conducted only with prior appointment and require the use of high-quality audio-visual equipment in specially designated rooms. It is conducted in a formal setting, and there are at least two ends—the patient's end and clinician's end (the clinician's end can be his consultation chambers).

Other care providers may simultaneously be present in separate locations or at the patient's and/or the clinician's end, either individually or in a group, to conduct a comprehensive review and help in care planning in a collaborative manner within a single teleconsultation session.

A number of equipments like USG scanners capable of performing echocardiograms, vital monitors, ECG machines, digital stethoscopes, etc., may be required at the patient's end where the digital outputs are telemetered through to the clinician's end and rendered over there using display screens, speakers, software solutions, etc., as required.

These sessions must be considered as referral session for all intents and purposes. Consequently, it is imperative that an EHR system be available that can access and display the past EMRs of the patient being reviewed. Without this teleconsultations remain incomplete, leaving the patient short changed. This is neither fair nor wise since any subsequent legal challenges regarding the care or advice delivered will put the clinician on a weaker footing as the fact that "due care" has

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been exercised at all times cannot be proven for lack of sufficient exculpatory evidence to support one's contention.

Teleconsultation is basically telepresence for a special situation. Connectivity thus is a very important issue. The best is a managed leased line network (MLLN) that provides point-to-point connections. Dedicated satellite links work well as the next-best alternative and are the communication links of choice where such end-to-end leased lines cannot be placed. Unfortunately, getting a dedicated satellite transponder or even booking it for a certain time each day is prohibitively expensive unless some subsidy in the form of fee waiver or reduced rates is available. Over the years, ADSL connections have become the medium of choice for most Internet service providers worldwide to provide Internet services to homes and are available for quite high speeds at very affordable costs.

There are both free and open source software (FOSS) as well as commercial telepresence applications available. These use the global Internet Protocol (IP) network and unified communications to deliver an immersive, same-room conferencing experience that is far more powerful and flexible than traditional videoconferencing systems and can be used to provide teleconsultations at relatively low costs.[1]

The connectivity between all the ends too needs to be established and tested out beforehand. Its failure to function optimally during any telemedicine session, let alone teleconsultation, is totally unacceptable.

Methodology

The following are the essential steps. Usually this will be almost identical to any outpatient in-person consultation process.

1. Make an appointment.
   (a) Both the clinician and the patient need to be available for teleconsultation on the date and time as per schedule.
   (b) The initial allotted time slot can be kept at 15 minutes that can be extended by further intervals of 15 minutes for as many number of times as deemed necessary.
   (c) If the consultation is over before the scheduled time, the next appointment can be taken up provided the patient next in the time slot is available. One must ensure that patients are not "passed over" in preference of someone else or that the patient queue is not broken unless there is an overwhelming reason like in an emergency situation when the patients who were not attended to in their usual appointment schedule receive priority appointment in subsequent scheduling—the patient is more than likely to be mightily aggrieved if they are not attended to at their appointed hour, and repeated "bouncing" them off schedule will make them complain about "deficiency of service" or consult someone else.

[1] https://en.wikipedia.org/wiki/Telepresence.

(d) One must not forget to make sure that the scheduled maintenance periods are catered to by blocking appropriate time slots for them.
(e) Should an appointment need to be cancelled, all the stakeholders must be informed well in advance instead of at the last minute—a personal call with apology is preferable to an SMS, which is preferable to an email that may not be read in time leading to misunderstandings all around.
(f) All sessions should preferably be performed only during office hours and that too on workdays; outside of these timings, these should be conducted only for emergencies.

2. At the start of the session, the patient should be warmly greeted, and then ask him to verify his identity to ensure that the correct patient is receiving the consultation.
3. Take his consent next to receive care from a distance after informing him about the details and allaying any fears or concerns that he might have about the teleconsultation—it is preferable to record the entire encounter for medico-legal purposes—the patient should be made aware of this fact with sufficient clarity or else the act of recording itself may constitute a breach of the prevailing laws of the land.
4. Appropriate entries should be made into the EMR throughout the encounter to ensure that as much of necessary information as possible is captured.
5. Patient's EHR must be reviewed and his general progress noted—"how are you doing?" with a smile goes a long way in gaining an instant interpersonal connection and building trust.
6. Interact as necessary; many patients are tech-savvy enough to be able to use their home-based/remote-based devices, while others will benefit from having a carer or a care provider in the form of another clinician or a nurse or a paramedic or even a health worker beside him to help out.
7. The patient should be encouraged to speak and eager relatives or carers gently discouraged from pre-empting them, even when the patient is a young person.
8. The patient's condition should be discussed, informing him about how he is doing clinically and explaining the advice being provided and the why and how of the treatment plan.
   (a) If the primary clinician is present, the case should be discussed with him and guidance provided exactly like one would do in all cases of referral.
   (b) If any physical examination is required, it must be ensured that this is performed by an appropriately qualified person—the alternative is to ask the patient to come in for an encounter in person as soon as possible.
9. The session should be signed off with a "thank you and have a nice day" message—people appreciate this very much and go a long way in having a positive impact upon patient satisfaction.
10. The records entered in the EMR should be reviewed and digitally signed as necessary.
11. One must only now move on to the next appointment on schedule, repeating the steps from # 2 as above onwards—clinicians will do well to remember to take a 5 min break after every hour of telemedicine consultation; this must be built in to the appointment schedule to help minimise fatigue, both physical and mental.

Setting It Up

It is best to treat the entire teleconsultation venture as a business project. This will ensure that it is handled in a professional manner where mistakes get minimised, if not entirely eliminated, and success rates and long-term viability are maximised.

It is assumed that the telemedicine room has been set up and fully equipped with connectivity between the various locations established, and everything functioning optimally. Setting up a teleconsultation room with all the necessary equipment and connectivity is not a job for amateurs or the "naturally gifted" and must be done by sufficiently experienced professionals. The extra expense incurred on this account is money well spent as it ensures the hassle-free operation of the entire project for which optimally running equipments with robust connectivity are crucial and make the difference between roaring success and utter failure.

Some very successful commercial videoconferencing (including telepresence content collaboration and communication) companies are doing brisk business and have proven ability to provide comprehensive solutions to facilitate the smooth functioning of teleconsultation sessions. Although somewhat expensive, the benefit is that they provide the equipment, set it up, do test runs, perform periodic maintenance and have great after-sales services. All this makes it well worth considering, provided that the price is right.

Since it is expected that most patients will either be in their home or visiting some local facility, ADSL or mobile connectivity is perhaps the best option for the former and MLLN for the latter. This of course means that the clinician's end will have to have provisions for both and this will increase the incurred costs. Telepresence is best delivered through dedicated leased line network as it provides a certain degree of comfort of shielding from snooping, albeit at a price. ADSL-based Internet connections can be used by laptops, tablets and smartphones that have built-in audio-video equipment to facilitate low-cost teleconsultations quite well. Using these for such interactions is quite acceptable and is well worth trying. *In fact, a large part of the cost of goods sold in the* pro forma *I & E for teleconsultation (provided in a later chapter) can be eliminated, thereby significantly bringing down most of capex as well as opex* (Fig. 7.1).

The figure above depicts the teleconsultation ecosystem. The care provider's end (clinician) and the care receiver's end (patient) are interconnected directly (using any suitable telecommunications link like high-speed dedicated leased line, ADSL, 3G/4G/5G, etc.) and indirectly via an EHR system that is preferably Cloud-based. It is worth noting that while there is only one-way connection between the patient and the EHR, there is a two-way connection with the clinician. This is since all the information gathered from the patient get sent to the system while the clinician not only interacts (reviews and queries) with it but also enters his observations into it. The various scanners, monitors and wearables collect clinical data from the patient and send them across both to the EHR system and directly to the clinician, which are then displayed using a variety of display monitors, tablets, computers and printers. The readers should note that the audio-visual equipments have not been displayed at either end to reduce clutter and increase clarity. Nevertheless, they are deemed present.

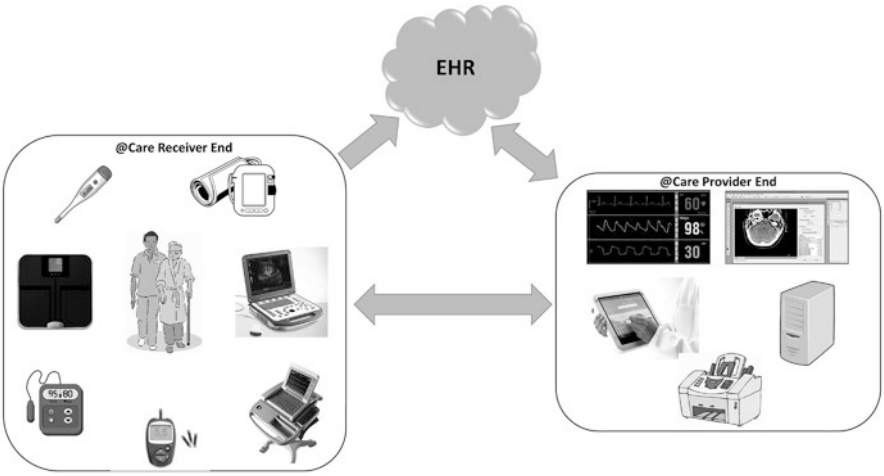

Fig. 7.1 Teleconsultation ecosystem

Running

Most equipment will work as soon as they are powered on. That does not guarantee that they will work fine too. A test run of sorts is always a good idea to ensure that no one is unnecessarily frustrated. If something is not working, it needs to be fixed right away.

Maintenance

Every equipment will require periodic maintenance. An annual maintenance contract is worth it provided it is comprehensive, ideally does not cost more than 10% of the total cost of equipment and has provision for regular check-up as well as attends calls for onsite repairs on demand.

A good process would be to replace old equipment at regular intervals even if they are working alright. Most of the modern equipment tends to become obsolete within 3 years. This factor must always be kept in mind.

Concluding Remarks

Teleconsultation remains and is expected to remain the *de facto* telemedicine service offering. This must be accepted. However, with progressive advancement in technology and consequent availability of better tools, this type of service can be expected to be quite commonplace that is hopefully inexpensive in the near future, almost like the by-now-ubiquitous cellphone.

Many of the currently available and widely used chat messaging applications offer both telephony and video-phony using Internet connection via mobile or broadband—the higher the speed, the better. The only downside to them is the large data bandwidths required by any teleconsultation, and so opting for a higher data plan with high enough speeds remains a wise choice. This makes the possibility of providing no-frills teleconsultations a relatively easy thing to conduct without much fuss.